



# FKKKS@UTM

Faculty of Chemical & Natural Resources Engineering | Universiti Teknologi Malaysia

[www.fkkksa.utm.my](http://www.fkkksa.utm.my)



*Engineering the Resources*

## ANNUAL REPORT 2007



Faculty of Chemical & Natural Resources Engineering  
**Universiti Teknologi Malaysia**



## **VISION**

To be a world class centre of academic and research excellence in the field of chemical and natural resources engineering through innovation and creativity

## **MISSION**

To lead in the development of world-class professionals and technology in chemical and natural resources engineering through excellence in education and research

# FKKKSA

## Contents

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Prof. Dr. Nor Aishah Saidina Amin

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Dr. Saharudin Haron

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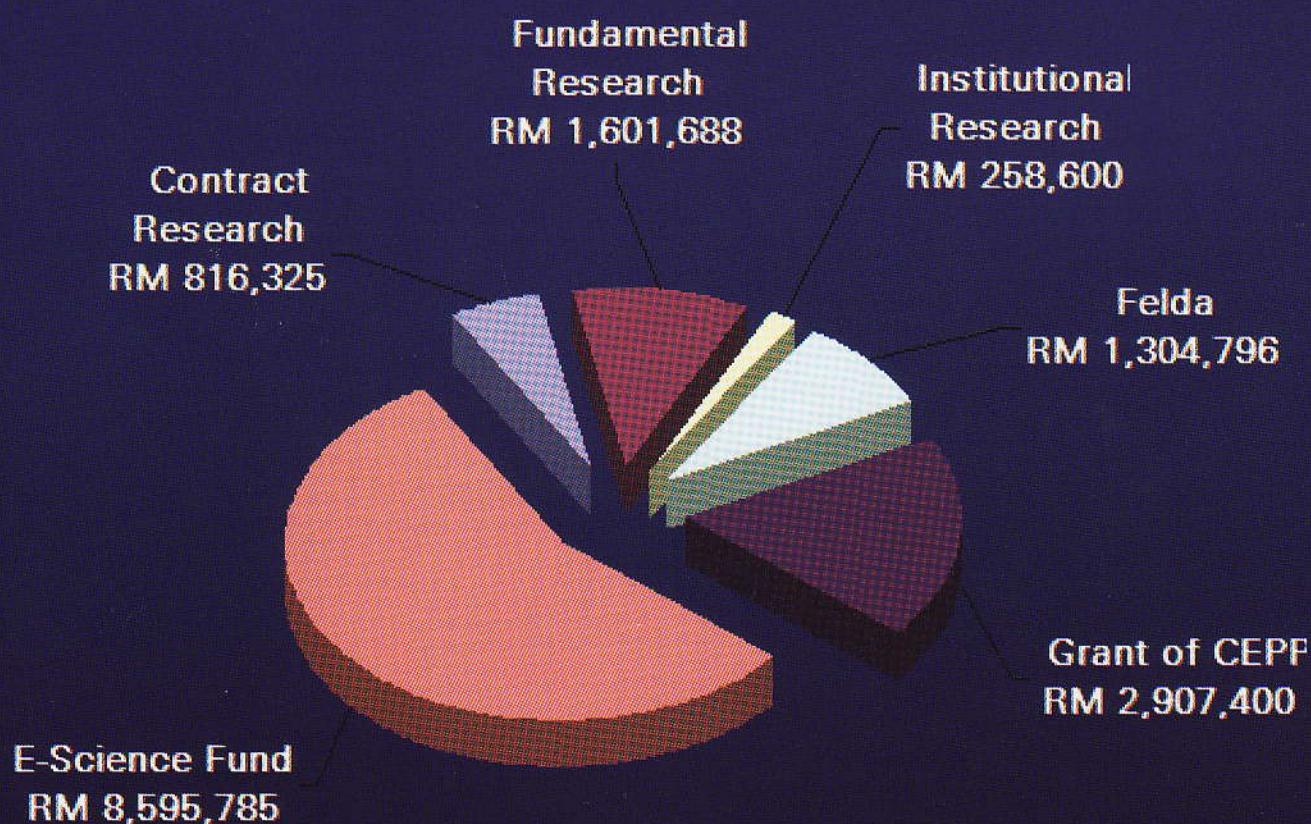
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## By the Numbers

### Research Fund Allocation For 2007



### ENROLLMENT AND DEGREES GRANTED

	2006 Enrollment			2007 Enrollment		
	B.Eng	M.Eng	PhD	B.Eng	M.Eng	PhD
Chemical Engineering	527	40	10	455	63	19
Petroleum Engineering	239	4	3	266	10	10
Gas Engineering	177	15	6	197	8	13
Polymer Engineering	207	8	2	204	11	7
Bioprocess Engineering	242	30	8	234	56	13
Environmental Engineering	-	16	-	-	19	2
Plant Processing Management	-	45	-	-	48	-
Polymer Technology	-	-	-	-	10	-
<b>TOTAL</b>	<b>1392</b>	<b>158</b>	<b>29</b>	<b>1356</b>	<b>225</b>	<b>64</b>



**AWARDS RECEIVED BY STUDENTS IN YEAR 2007****CHANCELLOR AWARD**

Voo Sook Ching - B.Eng. (Chemical)

**VICE CHANCELLOR AWARD**

Nor Ruwaida Jamian - B.Eng. (Chemical)

**GOLD MEDAL OF TUN FATIMAH HJ. HASHIM**

Raihana Zahirah Edros - B.Eng. (Chemical-Bioprocess)

**GOLD MEDAL FROM WANITA UMNO**

Nor Ruwaida Jamian - B.Eng. (Chemical)

**BEST ACADEMIC AWARD**

- Voo Sook Ching - B.Eng. (Chemical)
- Nor Alafiza Yunus - B.Eng. (Chemical)
- Fadhli Omar - B.Eng. (Chemical-Gas)
- Norhairna Baharulrazi - B.Eng. (Chemical-Polymer)
- Haneff Mohd Ali - B.Eng. (Petroleum)

**2007 Quick Facts**

- Dean: Professor Dr. Ariffin Samsuri
- Faculty Members: 16 Professors, 31 Associate Professors, 23 Senior Lecturers, 59 Lecturers, 12 Tutors
- Administrative & Supporting Staff: 75
- Students:
  - Enrollment: B.Eng. (1356), M.Eng. (225), Ph.D (64)
  - Graduated: Bachelor (318), Masters (50), Ph.D (7)
- Research:
  - Total Fund: RM12.6 million
  - Total Number of Research Projects: 86
- Publications:
  - International & National Journals: 61
  - International & National Proceedings: 60
  - Number of Citations: 1620
- Awards:
  - 4 gold medals

**2006 Degrees Granted**

B.Eng    M.Eng    PhD

177    23    4

37    -    1

45    1    1

46    5    1

44    9    -

-    3    -

-    6    -

-    -    -

**349    47    7****2007 Degrees Granted**

B.Eng    M.Eng    PhD

136    29    4

52    1    3

30    5    -

38    1    -

62    6    -

-    -    -

-    8    -

-    -    -

**318    50    7**



## Research & Development



FKKKSA is committed to excell in research and development on various fields of chemical, gas, petroleum, polymer and bioprocess engineering. This has been demonstrated through the extended efforts covering many important research projects being conducted by departments, research groups and centres affiliated with the faculty.

The research groups and centers affiliated with FKKKSA are listed below:

### Research Groups

1. Adsorption Selective Carbon Membrane Group
2. Advanced Process Engineering Research Group
3. Chemical Reaction Engineering Group
4. Crosslinked & Biopolymer Research Group
5. Energy & Combustion Group
6. Enhanced Oil Recovery Group
7. Gas Processing & Utilisation Group
8. Gas Technology Centre (GASTEG)
9. Gas Transportation Research Group
10. Geotechnology Environmental Group (GTEG)
11. High Temperature Processing Group
12. Membrane Research Unit (MRU)
13. Molecular Biotechnology Group
14. Petroleum Production Engineering Group
15. Pharmaceutical Technology Group
16. Plastics Recycling & Energy Recovery
17. Process Intensification Group
18. Process Synthesis & Design Group
19. Toughened Polymers & Composite Group
20. Water Quality & Water Quality Modeling

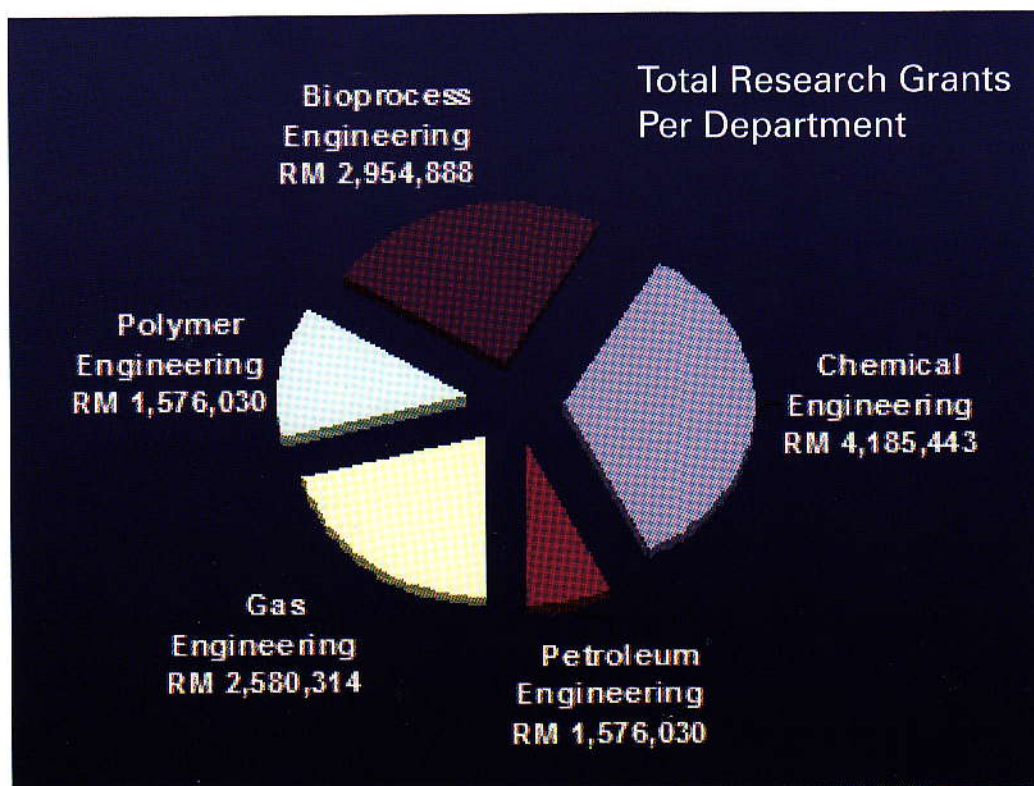
### Head of the Research Groups

- PM. Dr. M. Ghazali M. Nawawi
- PM. Dr. Hanapi Mat
- Prof. Dr. Nor Aishah Saidina Amin
- PM. Dr. W. Aizan W. A. Rahman
- PM. Dr. Azeman Mustafa
- PM. Dr. Mariyamni Awang
- Prof. Dr. Ahmad Fauzi Ismail
- PM. Dr. Rahmat Mohsin
- PM. Dr. Zulkefli Yaacob
- PM. Dr. Radzuan Junin
- PM. Dr. Mohd. Rozainee Taib
- Prof. Dr. Ahmad Fauzi Ismail
- PM. Dr. Rosli Md. Illias
- Prof. Dr. Ariffin Samsuri
- PM. Dr. Azila Abd. Aziz
- PM. Hanizam Sulaiman
- PM. Dr. Rosli Mohd. Yunus
- PM. Dr. Zainuddin A. Manan
- PM. Dr. A. Razak Rahmat
- PM. Dr. Maketab Mohamed



## Funds and Grants

FKKKSA has been successful in obtaining research grants from various fund providing agencies for 86 projects in the year 2007. The total amount of funds is MYR 12,577,195.20 which is distributed over the various departments as shown in the figure below.



## Recognition

### Publications

The ongoing research in FKKKSA has conceived 121 articles in renowned international journals of high impact factor in addition to journals and conferences at national and international level. The faculty has won the University's Publication award for the year 2007 worth RM 10000.

### Awards

The outstanding excellence contributed by FKKKSA in R & D achieved over the past two decades has been recognized by community of peers at national and international research institutes. With some highly motivated and gifted researchers leading research programs, FKKKSA has expanded the trophy case this year with 4 gold medals in national and international exhibitions.

### IPs

The researchers in FKKKSA have managed to file 15 patents in the year 2007. One of them has been granted and the rest are pending.



# Chemical Engineering Pilot Plant (CEPP)

*...biotechnology for wellness...*



Chemical Engineering Pilot Plant (CEPP) is a multi-purpose Research and Business Development (R&BD) facility located at UTM Skudai Campus, Johor Darul Takzim. The centre was established to spearhead the development of new innovative specialty chemical products and processes. The centre is equipped with a range of semi-industrial scale processing equipment and supporting laboratory facilities. CEPP focuses on developing products and processes for the specialty chemical industry. It assists in the development of high value components and innovative processing technology for industries such as nutraceuticals, herbal, phytochemicals, flavour and fragrance, food ingredients, probiotics, biopesticides & biofertilizer.

## ACADEMIC PROGRAMMES

The Integrated Process Plant Management Scheme (IPPMS) under CEPP academic program has 50 students and 14 of them graduated in 2007. The Bioentrepreneur programme - a programme specially designed for post graduates in biotechnology has 15 students and CEPP also has two Ph.D students under its supervision.

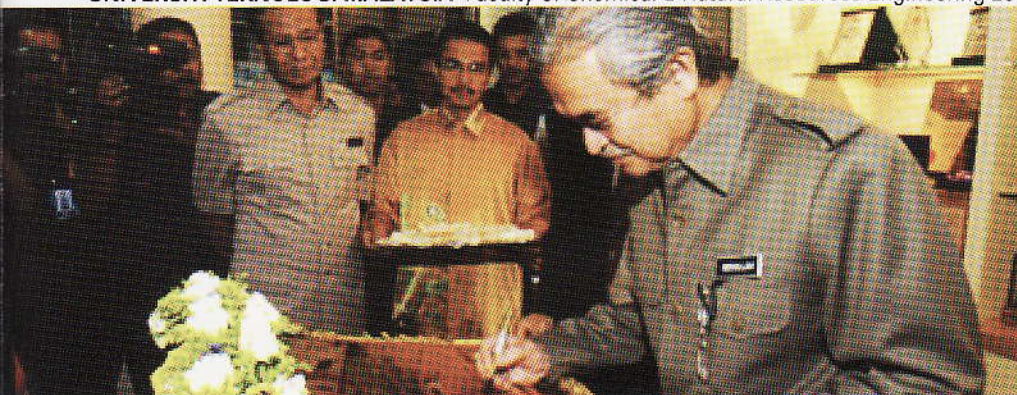
## JOURNAL & OTHERS

Throughout the year CEPP has produced five refereed journals. At international level at least eight paper presentations had been presented and seven presented locally. CEPP's staff has also been invited as speakers to deliver public lectures by various organizations.

## TRAINING

As a Centre of Excellence, CEPP in line with the government approach on building up human capital has conducted 46 short courses involving approximately 1000 participants. Most of the participants comes from industry, businesses and through CEPP smart partnership with the Ministry of Rural and Regional Development (KKLW). The Memorandum of Agreement (MoA) between University through CEPP and KKLW was signed on 17 April 2007. CEPP also had organized two sessions of workshop and one conference.





Monday, June 6, 2005 at 6.00 pm was a historic day for CEPP when our Prime Minister, YAB Dato' Seri Abdullah bin Ahmad Badawi officiated our Research & Business Development (R&BD) centre. This event was made possible by the Chief Minister of Johor State, YAB Dato' Abd Ghani bin Othman, who generously allocated a few hours from official visit of the Prime Minister to the state.

## CEPP Highlights

### Research Grants

CEPP had secured a total of **RM500,000.00 from MOSTI**, **RM323,000.00 from FELDA** and **RM584,400.00 from E-Science FUND**. The project titles are listed as follows:-

#### A. Research Projects under the Biotechnology Satellite Programme (MOSTI) through the Johor State Government

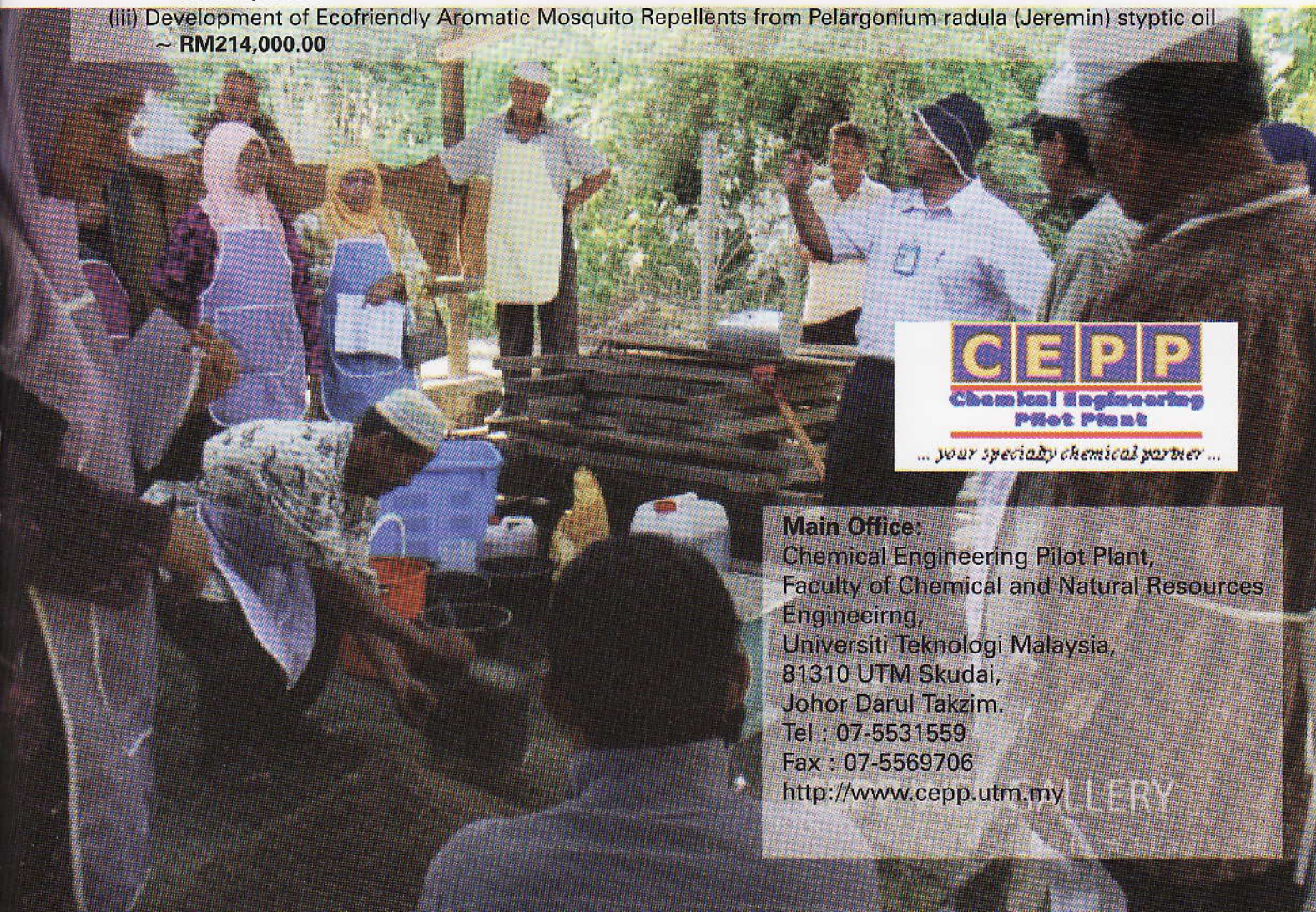
- (i) The Efficacy and Toxicity Study of Cinnamon as a Health Supplement ~ **RM 200,000.00**
- (ii) Bird's Nest Physiochemical Profiling and Purification Process ~ **RM 199,000.00**
- (iii) Stabilized Food Grade Natural Colorant from Local Plants ~ **RM 101,000.00**

#### B. FELDA Foundation Research Grant

- (i) Near Infrared Spectroscopy for Non-Destructive Analysis of Eurycoma Longifolia (Tongkat Ali) ~ **RM323,000.00**

#### C. E-Science FUND

- (i) Encapsulation of Papain For Edible Cosmeceuticals ~ **RM120,400.00**
- (ii) The Effect of Edible Bird Nest Extract on Chondrocytes isolated from Osteoarthritic Articular Cartilage ~ **RM250,000.00**
- (iii) Development of Ecofriendly Aromatic Mosquito Repellents from Pelargonium radula (Jeremin) styptic oil ~ **RM214,000.00**



**CEPP**  
Chemical Engineering  
Pilot Plant

... your specialty chemical partner ...

#### Main Office:

Chemical Engineering Pilot Plant,  
Faculty of Chemical and Natural Resources  
Engineering,  
Universiti Teknologi Malaysia,  
81310 UTM Skudai,  
Johor Darul Takzim.  
Tel : 07-5531559  
Fax : 07-5569706  
<http://www.cepp.utm.my>





## Membrane Research Unit (MRU)

Membrane technology is one of the most recent and advanced technologies developed for separation processes such as gas separation, water desalination, water and wastewater treatment, drinking water production, food and beverage processes, medical industries and filtration processes.

Members of Membrane Research Unit 2007

MEMBRANE RESEARCH UNIT (MRU) was established in the Faculty of Chemical and Natural Resources Engineering, Universiti Teknologi Malaysia, Skudai, Johor. Prof. Dr. Ahmad Fauzi Ismail, Director of this centre of excellence has successfully done research to develop MRU. In addition, this centre has attracted a number of industries to utilize expertise in their R&D planning or to further exploit the findings for commercial production.

In the process of developing membrane technology as one of the viable indigenous technology in Malaysia, Membrane Research Unit, UTM has outlined a pragmatic research activity to achieve the goal. The research activities have been systematically categorized as i) Membrane Manufacturing

ii) Membrane Process Modeling, Design and Simulation and iii) Membrane Application.

Membrane is defined as a thin skin layer formed from various materials such as plastic, metal or ceramic. Normally membrane was designed based on its application. Based on the membrane structure and size of the material or media to be separated, membrane allows selective permeation of one component through the membrane and retains other components in a mixture of solutions. The ability to separate one component from others in solution mixture is called selectivity. The development of the membrane technology is crucially important to Malaysia because of the advantages offered by it.



## MRU Highlights

**Jan -Jul 2007:** Distinguished Visiting Professor Programmes- Prof. Emeritus Dr. Matsuura Takeshi from University of Ottawa, Canada. Appointed as an adviser to FKKKSA and UTM regarding learning and research especially in membrane technology

**15 Feb 2007:** Demonstration and visitation from students-Bachelor of Engineering Chemical and Gas to membrane research lab. One of the activities for Bachelor students for learning processes.

**10 March 2007:** National Carbon Nanotechnology Meeting 2007. Monthly meeting to discuss the development of nanocarbon technology.

**12 March 2007:** Programme Meeting on Polymer-Based. Discussion regarding current development from financial aspect and discussion to propose Carbon Fiber Seminar 2007 which was organized by SIRIM in August 2007.

**18-20 May 2007:** National Workshop on Membrane Technology for Fluid Separation Processes. This programme was organized by MRU to discuss and present the current developments of membrane technology.

**28 May 2007:** National Carbon Nanotechnology Meeting 2007. Monthly meeting to discuss the development of nanocarbon technology.

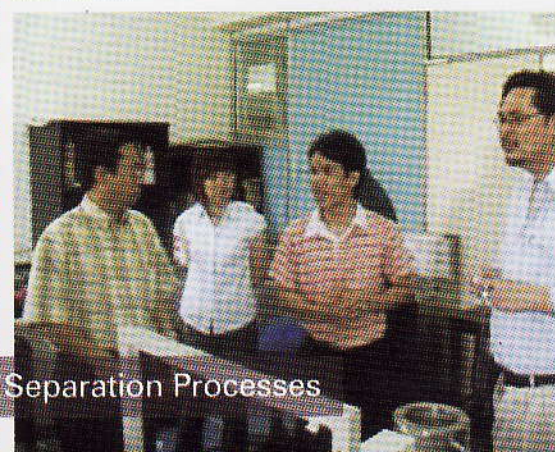
**21 June 2007:** Programme Meeting on Polymer-Based. Discussion regarding current development from financial aspect and discussion to propose Carbon Fiber Seminar 2007 which was organized by SIRIM in August 2007.

**Aug-Oct 2007:** Distinguished Visiting Professor Programme - Prof. Dr. Kang Li from Imperial College, London. Appointed as adviser to FKKKSA and UTM regarding learning and research especially in membrane technology.

**6 Aug 2007:** Programme Meeting on Polymer-Based. Discussion regarding current development from financial aspect and discussion to propose Carbon Fiber Seminar 2007 which was organized by SIRIM in June 2007.

**25 Aug 2007:** Monthly meeting – MRU members. Meeting regarding the current outcome for research, safety and finance.


**15 Sept 2007:** National Workshop on Ceramic Membrane Technology. MRU organized this program to discuss and present the current developments of ceramic membrane technology.



National Workshop on Membrane Technology for Fluid Separation Processes



# Gas Technology Centre (GASTEG)



GASTEG is an centre of excellence to promote training, research and services. It is one of the first centre of its kind being established in South East Asia and targeted to become a prime reference for the regional gas industry and soon will be established internationally.

<http://web.utm.my/gasteg>

GASTEG is attached to the Faculty of Chemical and Natural Resources Engineering which is located at Universiti Teknologi Malaysia Skudai, Johor.

So far, there are limited number of institutions which focus in training, research and services to support the gas industry. Among those UTM has taken the lead to form the GAS TECHNOLOGY CENTRE (GASTEG). GASTEG intends to become the coordination centre for activities undertaken by local and international gas industry. According to its Director, Assoc. Prof. Dr. Rahmat Bin Mohsin GASTEG in line with its vision to promote the dissemination of knowledge and experience for the betterment of the Malaysian gas industry.



## GASTEG Highlights

**Jan 2007:** GASTEG has successfully organized activity with Gas Malaysia to conduct a project entitled 'Incident Investigation on Gas Pipeline Leakages and Breakages for Gas Malaysia Sdn. Bhd'.

**28 Mac 2007:** The final presentation for the above project was conducted at Gas Malaysia Sdn. Bhd, Shah Alam, was undertaken by 25 participants including from GASTEG, Gas Malaysia and CFD.

**28 Aug 2007:** GASTEG has received visiting professor, Prof. Badr G Ateya from Kuwait University. His arrival was greeted by Director of GASTEG, Prof. Madya Dr. Rahmat Mohsin and the GASTEG staff. Prof. Badr G Ateya also visited laboratory and had a discussions with GASTEG.




**LABORATORY SERVICES UNIT (UNIPEM)**

Address: Aras 2, Blok N07, FKPKSA, UTM Skudai

Tel: 607-5535461 Fax: 607-5581463

Email: unipem2u@fkpkksa.utm.my



LABORATORY SERVICES UNIT (UNIPEM) is actively involved in analysing and testing of physical and chemical properties of petroleum, petroleum-related products, polymer materials and others. In 1997, UNIPEM was awarded an ISO/IEC 17025 accreditation under Malaysian Laboratory Accreditation Scheme (SAMM) by the Department of Standards Malaysia. Since that, UNIPEM has been operating in accordance to SAMM requirements in providing and maintaining quality laboratory services to the clients. The current accreditation certification expire only in December 2008.

**UNIPEM Highlights**

**Jan – Dec 2007:** UNIPEM received many requests for testing from industries:

- Sipro (M) Sdn. Bhd.
- Universiti Malaysia Pahang
- CITO Petroleum (M) Sdn. Bhd
- Emerson & Cuming (M) Sdn. Bhd.
- DBL DreamHomes Sdn. Bhd.

**7 Jan 2007:** UTM's Vice Chancellor visit to UNIPEM.

**9-11 Feb 2007:** UNIPEM staff workshops: Migration from ISO/IEC 17025 to MS ISO/IEC 17025 at Hotel Seri Malaysia, Mersing.

**17 March 2007:** Verification Audit: Migration to MS ISO/IEC 17025: 2005 by Department of Standards Malaysia

**April 2007:** Laboratory Safety Audit by UTM Safety Panel for Best Laboratory Contest for UTM level. 3rd place.

**June – Sept 2007:** Discussion for cooperation with CITO Petroleum (M) Sdn. Bhd., and signing of agreement to cooperate with the Faculty (UNIPEM) with CITO Petroleum (M) Sdn. Bhd.

**Sep – Oct 2007:** Coordinator for Interlaboratory Proficiency Test Correlation Program 2007 – Diesel Program. Six labs have participated in this year program: Laboratory Services Unit (UNIPEM), ITS Testing Services (M) Sdn. Bhd (Port Klang), Core Laboratories Malaysia Sdn. Bhd. (Shah Alam), Industry Division and Tariff Trade Classification of Malaysian Chemistry Department (Petaling Jaya), Central Laboratory Shell Refining Company (Port Dickson), STRIDE – Malaysian Ministry of Defence (Kajang)

**15 Oct 2007:** Prof. Dr. Hassan Saad (Chief Director of Ministry of Higher Education, Malaysia) visit to UNIPEM.

**8 Dec 2007:** 10th Anniversary (1997-2007) for UNIPEM – 10 years accredited with the ISO/IEC 17025 under Malaysian Accreditation Laboratory Scheme (SAMM) by the Department of Standards Malaysia.



## Department of **CHEMICAL** Engineering



### 2007 Quick Facts

Head: Associate Professor Dr. Khairiyah Mohd. Yusof  
 Academic Staff: 8 Professors, 1 Contract Professor, 10 Associate Professor, 8 Senior Lecturer, 24 Lecturer, 4 Tutors  
 Undergraduate students: 445  
 Graduate students: 82  
[www.fkksa.utm.my/chem/](http://www.fkksa.utm.my/chem/)

## Renowned for Research

Since its inception in 1983, the Department of Chemical Engineering UTM has emerged as one of the leading centres of reference for technology development and innovations to support chemical and process industries from national and multinational companies. It is well-equipped with extensive facilities to meet the R&D needs and is supported by a large team of highly qualified and dedicated academicians who are well-experienced in training, consultancy, research and development activities.

The department consists of the following research groups:

- Process Synthesis and Design Group (PSE)
- Process Control and Safety Group (PCS)
- Chemical Reaction Engineering Group (CREG)
- Separation Science and Engineering Research Group (SENER)
- Advanced Process Engineering Group
- Process Intensification Group (PI)

- Adsorption Selective Carbon Membrane Group
- Environmental Research and Consultancy Group (EnvRCG)
- High Temperature Processing Group (HiTEMP)
- Industrial Air Pollution & Air Quality Research Group
- Water Quality and Water Quality Modelling Group

Each group is headed by a well-experienced expert researcher who has extensive involvement in R & D work in close co-operation with industry. The group head leads research as well as a dedicated research lab.

The department is also synonymous with its leading centres of excellence in the nation, namely the Chemical Engineering Pilot Plant (CEPP) which is engaged in fine and specialty chemicals R&D activities as well as in professional training.



## Achievements and Activities

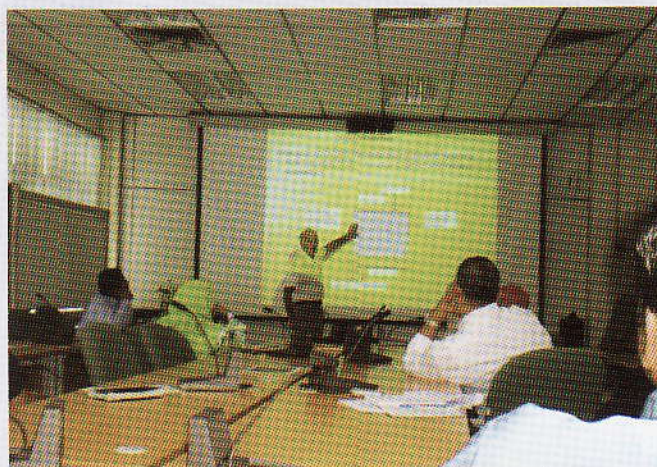
Following are the summaries of all the achievements and the activities done by the department in 2007:

- Assoc. Prof. Dr. Hanapi Mat joined as the Research Fellow at Kyushu University in Japan.
- Dr. Aishah Abd. Jalil joined the Postdoctoral Programme at the Kyushu University in Japan.
- Three postgraduates and an undergraduate supervised by Dr. Zainuddin Abd. Manan and Dr. Sharifah Rafidah Wan Alwi, had won the Southeast Asia & Taiwan Universities (SATU) Business Plan Competition at National Level 2007.
- Dr. Aishah Abd. Jalil won the 2nd place for poster presentation and content in the Regional Annual Fundamental Science Seminar.
- Dr. Zainuddin Abd. Manan appointed as Professor for his achievement in his field.
- Chemical Engineering Department Retreat 2007 was held at the Mahkota Hotel, Melaka for three days.
- Visit by Prof. Peter Silveston from the University of Waterloo, Canada.
- Visit by students from Helsinki University of Technology and Prof. Markku Hulme.
- Consultancy activities in various areas by Assoc. Prof. Dr. Mohd. Rozainee Taib, Prof. Dr. Zainuddin Manan, Prof. Mohd. Rashid Mohd. Yusof, Dr. Mohd Ariffin Abu Hassan, Dr. Zainura Zainon Noor and Prof. Dr. Mohamed Mahmoud.
- The total amount of grant received in 2007 was RM 4.2 Million.
- 11 international and 11 national publications were published.
- 11 international students enrolled the chemical engineering postgraduate programme.
- Prof. Dr. Mohamed Nasef from Egypt is appointed as the Contract Professor for this department.
- Pioneering the research on Chemical Engineering Education in Malaysia especially in Active Learning, Cooperative Learning and Problem-Based Learning.

## Competitive Students

Chemical Engineering Department students are known to excel. Here are a few highlights from the past year.

- Chemical Engineering Student Society (Persatuan Pelajar Kejuruteraan Kimia-PPKK), organized the national-level programme which is the National Chemical Engineering Symposium (NACES).
- Educational Industrial Visit to numerous industries such as Natoleo Chemicals and Kempas Edible Oil.
- The first year students successfully organized the Water Campaign (WACOMP 2007) in UTM.
- Nor Ruwaida Jamian received the Vice Chancellor Award during 2007 UTM Convocation and the Gold Medal Award from Wanita UMNO during the Majlis Perwakilan Wanita UMNO presented by the Minister of International Trade and Industry.
- Nor Alafiza Yunus also received the Best Academic Award during 2007 UTM Convocation.





## Department of

**PETROLEUM** *Engineering***2007 Quick Facts**

Head: Associate Professor Issham Ismail

Academic Staff: 4 Professors, 7 Associate Professors,  
5 Senior Lecturers, 5 Lecturers

Undergraduate students: 266

Graduate students: 20

[www.fkkksa.utm.my/petroleum/](http://www.fkkksa.utm.my/petroleum/)

## ***Achievements and Activities***

The academic staff in the Department of Petroleum Engineering consists of highly qualified members and committed to academic excellence. Currently, the department has 21 academic staff; four professors, seven associate professors, five senior lecturers, and five lecturers. They have multi-discipline expertise in petroleum related engineering with wide academic, publication, research and consultancy experiences. In 2007, eighteen staff were active in lecturing and supervising, one staff was seconded to the University Technology Petronas, one undergone industrial training, and one pursued his PhD abroad.

Other organizations have high regard for our staff. Associated Professor Dr Mariyamni Awang was appointed as Visiting Professor at the University of Technology Petronas for two years. In addition, Prof. Dr. Ahmad Kamal Idris and Prof. Dr. Mohd Nawli Derahman were invited to be members of evaluation panels of the Petroleum Engineering curriculum by University Technology Petronas, Tronoh, Perak.



**Research:**

Our academic staff have been actively involved in research and development, where those research activities were funded via E-Science and FRGS research grants. In 2007, the department managed to secure seven research grants worth about RM 1 million. Here are some research grants received:

- Prediction and Treatment of Scale in Malaysian Oilfield Operations (E-Science: RM265,000) headed by Prof. Dato' Dr. Abu Azam Md. Yassin.
- Development of Agriculture-based Surfactant to improve Oil Recovery. (E-Science: RM250,000) headed by Prof. Dr. Ahmad Kamal Idris.
- Surfactant Characteristics in Porous Media. (FRGS: RM150,000) headed by Prof. Dr. Ahmad Kamal Idris.
- Adsorption of Surfactants to Rock and Geology Samples that vary in Mineral Content (FRGS: RM100,000) headed by Assoc. Prof. Dr. Radzuan Junin.
- Emulsion Characterization and Flow Behaviour in Porous Media (FRGS: RM100,000) headed by Dr. Muhammad A. Manan.

**Consultancy:**

Our academic staff have been involved in consultancy in various government and private sectors; such as Petronas Penapisan, Petronas Gas, Gas Malaysia, Second Port Sdn. Bhd., Tenaga Nasional, Huntsman Tioxide, and MS Downer EDI Engineering. In 2007 alone, around twelve consultancy projects worth more than RM 5,000,000 had been awarded to our academic staff.

**Publications:**

Our staff members are also active in publications and the achievements in 2007 are:

- 6 papers in peer-reviewed international journals such as Journal of Applied Sciences, Emirate Journal for Engineering Research and Canadian Journal.
- 3 papers in peer-reviewed national journals

**Other contributions:**

In addition to research, consultancy and paper publication, the academic staff had also been highly sought to become speaker or facilitator of some courses, reviewer panels to journals, and evaluation panels for FRGS by MOHE and E-Science by MOSTI.

**Competitive Students**

In 2007, the department has 262 petroleum engineering undergraduate students, 8 MSC students, and 5 PhD students. In addition to formal education, those students were also well known for their keen participation in the SPE-Students Chapter activities, an effective way to develop and improve their generic skills. Their grand achievements in 2007 were:

S-SPEC, a Shell Inter-Varsity Student Paper Presentation Contest in collaboration with Shell.

SPE Young Professional Workshop, in collaboration with SPE Asia Pacific, at Putrajaya.

Schlumberger-FDP Workshop, sponsored by SPE-UTM and Department of Petroleum Engineering, at Renaissance Hotel, KL.

Reservoir Simulation Course 2007, organized by SPE-UTM and Department of Petroleum Engineering.

Educational study trip to Jurong Shipyard, Singapore.

Educational industrial visit to oil service companies in Kemaman Supply Base, Terengganu.

The department is proud to have produced 47 petroleum engineering graduates in 2007 where all of them are currently employees of many multinational companies, namely Petronas, Shell, Exxon-Mobil, Schlumberger, etc





## Department of **GAS** Engineering



### 2007 Quick Facts

Head: Associate Professor Dr. Azeman Mustafa  
Academic Staff: 2 Professor, 3 Associate Professors,  
2 Senior Lecturers, 6 Lecturers, 3 Tutors  
Undergraduate students: 230  
Graduate students: 18  
[www.fkksa.utm.my/gas/](http://www.fkksa.utm.my/gas/)

## ***Achievements and Activities***

The academic staff in the Department of Gas Engineering consists of highly qualified members. They have multi-discipline expertise in gas related engineering with wide academic, research and consultancy experiences. Currently, the department has seventeen full time academic staff; two professors, three associate professors, four senior lecturers, and eight lecturers. Three of our staff have professional qualifications in gas related industry.

The department has three distinct Expert Groups - Gas Transmission & Distribution Group, Gas Processing & Utilization Group and Combustion & Energy Group. Each group has been actively involved in research, consultancy and publications at national and international levels.

Other organizations from overseas have high regards for our staff. Professor Dr Ahmad Fauzi received distinct recognition from the Imperial College London, where he is appointed as the Visiting Research Fellow for six months (early 2007). In addition, Dr Khairol Sozana was awarded the Hitachi Fellowship Award as a Visiting Scientist at the Institute of Material Chemistry and Engineering, Kyushu University Japan.



**Publications:**

Twenty-six papers were published in various international and national journals with 427 citation index; such as Journal of Membrane Science, Journal of Applied Membrane Science and Technology, Desalination Journal, Journal of Material Science and Engineering, Journal of Separation and Purification Technology, Journal of Applied Thermal Engineering, Journal of Fuel Processing Technology, Process Biochemistry Journal of Atmospheric Environment. In addition, approximately twenty proceeding papers were presented at national and international conferences. Professor Dr Ahmad Fauzi has been awarded the Best International Journal Paper 2007 by UTM.

**Consultancy:**

Our academic staff have been involved in consultancy in various government and private sectors; such as Jabatan Kerja Raya Johor, Petronas Gas, Petronas Penapisan Melaka, Gas Malaysia, Pan Century Oleo-Chemical Plant, and Diversited Intelligence Sdn Bhd. Almost ten consultancy works were awarded to our academic staff.

**Research:**

Our academic staff have been involved actively in research and development through IRPA, E-Science, FRGS research grants and Johor State Government fund.

Almost RM 2.6 million had been granted in 2007 for ten E-Science research grants. In addition, the department managed to secure another four research grants worth RM 300,000 under FRGS.

Professor Dr Ahmad Fauzi received recognition from the Johor State Government with a fund for his research worth RM 1.46 millions.

**Other contributions:**

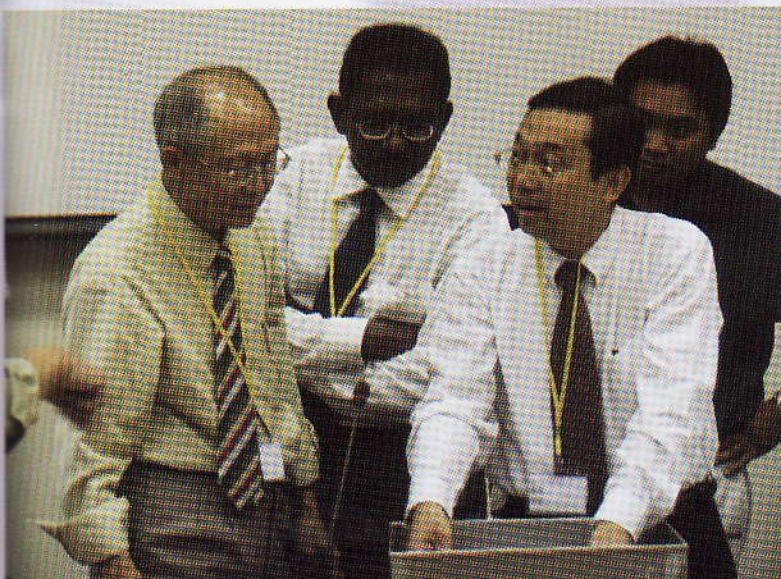
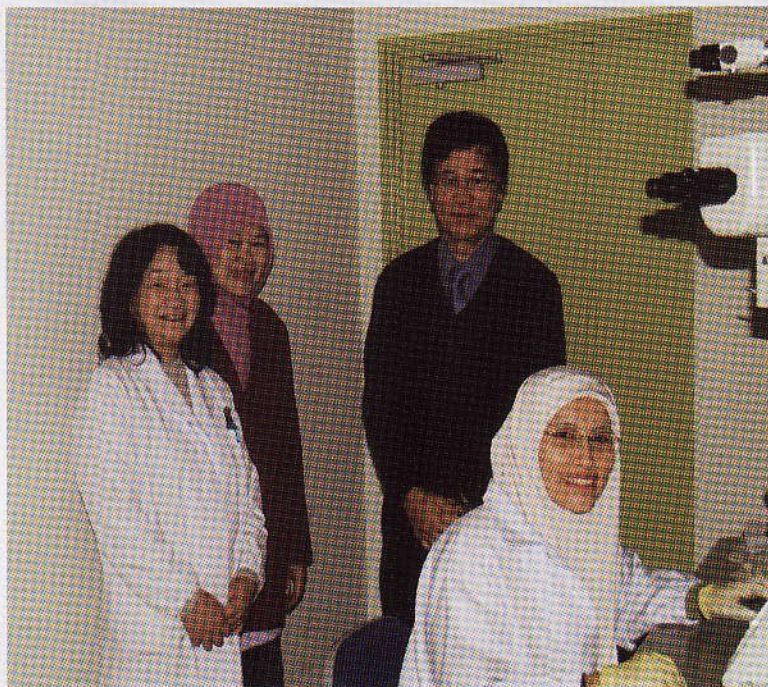
In addition to research, consultancy and paper publications; the academic staff of gas engineering department were highly sought to become chief-editors and reviewers to both national and international journals.

One patent had been granted to PM Dr Rahmat Mohsin and En Zulkifli Majid in 2007 for their development of fluid flow meter.

In 2007, the department organized two national workshops on "Ceramic membrane for separation and reaction" and "Membrane technology for fluid separation processes", and one seminar entitled "Corrosion in oil and gas industry".

## ***Competitive Students***

The department has 230 chemical-gas engineering undergraduates, 6 PhD students and 12 MSc students. Our students also consist of 7 international students – 4 undergraduates and 3 postgraduates. Our undergraduate and postgraduate students have been equipped with the necessary technical knowledge and skills as demanded by industry through various up-to-date instructional methods. Recent graduates who are being employed by multinational companies such as Petronas, Shell and Schlumberger are testimony to this.





## Department of **POLYMER** *Engineering*



### 2007 Quick Facts

Head: Professor Dr. Azman Hassan

Academic Staff: 1 Professor, 5 Associate Professors,  
2 Senior Lecturers,

11 Lecturers, 2 Tutors

Undergraduate students: 208

Graduate students: 15 Masters and 6 PhDs

[www.fkksa.utm.my/polymer/](http://www.fkksa.utm.my/polymer/)

Polymeric or specifically plastic materials have become common materials in everyday life since they contribute important properties such as ease of forming, flexibility, impact strength, lightweight and low cost. It is now very difficult to find the point at which plastic cannot be considered as an essential component. Hence, the Chemical Engineering (Polymer) degree programme has been offered since 1989 in order to produce manpower to meet the ever increasing demands of the fast growing polymer industry. This further led to the establishment of the Department of Polymer Engineering in 1998 following the restructuring of the faculty.

Besides the 8-semester bachelor degree programme in Chemical Engineering (Polymer), the department also offers MSc (4 semesters) and PhD (6 semesters) in Polymer Engineering by research as well as the very first and by far, the only MSc in Polymer Technology by taught course in Malaysia.

The academic staff of the department are actively engaged in teaching, research and consultation. Currently, Assoc. Professor Dr. Razak is the Chairman of the Plastics Rubber Institute of Malaysian Southern Chapter (PRIM Southern Chapter). PRIM has also appointed Prof. Dr. Azman Hassan as the Editor-in-chief for Malaysian Polymer Journal.

Prof. Dr. Azman Hassan was appointed as professor of the department for his achievement and contribution in the field. Two members of the department namely Dr. Zurina and Dr. Rohah completed their PhDs and a third member Nadia Adrus had completed her masters and currently pursuing her PhD in Germany. The appointment of Mr Kharuddin Shaaban from Dow Chemicals as adjunct associate professor in our department has definitely strengthened our department. It is our strong belief that his in-field experience on top of the updated knowledge will surely bring about the advancement of the department. rheology, microscopies and computational modeling.



## Achievements and Activities

The Five faculty members were appointed as members in Malaysian Standards Committees:

Staff	Malaysian Standards Committee
Prof. Dr. Azman Hassan Dr. Mat Uzir Wahit	Chlorinated PVC Pipes
PM Dr. Razak Rahmat	Contact Adhesives
PM Hanizam Sulaiman	Industrial Standards Committee for Plastics (ISC-J)
PM Dr. Wan Aizan Wan Abdul Rahman	Cross-linked PE, PE Water Tank and PB Pipes

6 E-Science and 6 FRGS Grants have been awarded to our academic staffs in 2007. We have research collaborations with various companies and institutions in Malaysia such as Jabatan Perikanan Malaysia, MPOB, Fibersit Heng Hiap Industries, ASHFA Industries, Aliran Bersekutu, Petronas, Polystar and Jelaran Tekno.

The expertise and ability of our academic staff are recognized and acknowledged nationally and internationally through the appointment of some of the staff as the editorial board members for national journals such as Malaysian Polymer Journal, Journal of Institute of Materials Malaysia and Trends in Applied Science Research as well as the paper reviewers for international journals i.e. Polymer Symposia, Polymer International, Journal of Applied Polymer Science, Canadian Journal of Chemical Engineering, Journal of Thermoplastics Composite Materials, Express Polymer Letters and Polymer and Polymer Composites.

### Internationalization: Spread Our Wings to other Continents

Our department was visited by Professor Tomasz Sterzynski from the Institute of Chemical Technology, Poznan University of Technology, a prestigious university in Poland between 23-27 July 2007 on his capacity as the Visiting Professor for the department. Prof Sterzynski has 34 years experience in teaching, research and consultations and is an expert in polymer physics and polymer processing. He also heads several joint European projects. During the visit, Prof Sterzynski reviewed and evaluated the Polymer Engineering curriculum. He also met with the Faculty Dean and visited our laboratories, CEPP and Ibnu Sina Institute. Prof Sterzynski showed his generosity in sharing his expertise by giving several technical talks on topics such as structural investigation of semi-crystalline polymers, rheology of highly filled systems and phase inversion. He also talked about education systems in Poland and Europe and gave tips on how to prepare papers for international journals. A meeting was also arranged with the department's graduate students to discuss various aspects of their research projects. The visit also initiated the collaboration program between our faculty and the faculty of Chemical Technology of Poznan University of technology which will surely

catalyse our internationalization plan.

Prof Dr Azman and Dr Mat Uzir's South Africa trip was one of the activities in conjunction to our internationalization plan. The trip was made from 28 October to 5 November with three main objectives i.e. to initiate research collaboration, to look for contract lecturers as well as to advertise our postgraduate courses. They had visited three research institutes and universities, namely Tshwane University, Council of Scientific Industrial Research (CSIR) in Pretoria and University of the Free State (Qwaqwa Campus). As we spread our wings to other continents, we believe that our mission in internationalizing our department and ultimately UTM will not remain as a dream!

Embarking on this initiative of internationalization, our department has appointed two international contract lecturers Dr. Abdir Rahman Ali Yousuf from Australia and Dr. Mohammad Ilyas Khan from UK have joined the department in May 2007.

## Competitive Students

We are on the track to produce more quality and skilled manpower for the development of local and even international polymer industries. Currently, there are 208 undergraduate and 21 postgraduate students pursuing their degrees under various courses offered by the department.

The students of the department have formed the PRIM Student Chapter, the first of its kind in the nation. They are actively involved in various activities such as research and technical seminars, motivation talks, public speaking competitions, product design competitions and also in sports competitions.

The broad spectrum of the Bachelor in Engineering (Chemical-Polymer) programme prepares the students for the careers in various fields such as petrochemical, composites, plastics processing, product design and development, development and utilisation of additives, packaging materials and coating, adhesives, rubber compounds and latex, academic research and sales.

Graduates of the department are currently employed at various multinational companies and other academic and research centres such as SIRIM, Rubber Research Institute of Malaysia (RRIM), Malaysian Institute of Nuclear Technology (MINT), Titans, Polystar, Plastrade, Baerlocher, Shell, BASF and many others. Many of our graduates also opted for further studies at MSc and PhD levels.





# Department of BIOPROCESS Engineering



## 2007 Quick Facts

Head: Associate Professor Dr. Fadzilah Adibah Abdul Majid

Academic Staff: 1 Professor, 5 Associate Professors, 3 Senior Lecturer, 10 Lecturers, 4 Tutors

Undergraduate students: 240

Graduate students: 66

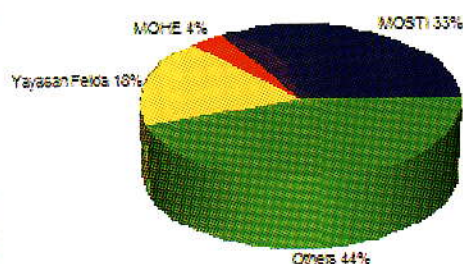
[www.fkksa.utm.my/bio/](http://www.fkksa.utm.my/bio/)





## Achievements and Activities

JKB Research Fund 2007



Our department is fully committed to high quality research and students' excellence. We have 2 teaching laboratories and 6 research laboratories equipped with state-of-the-art facilities along with experienced and dedicated staff. Among the areas of interest in research are membrane separation, fermentation technology and bioreactor design, tissue culture engineering, food processing technology, protein engineering, biosensors and biotransformation.

Besides educational programmes, we also organised recreational and self-improvement activities periodically for the students to help them boost their self esteem, enhance communication skills, as well as strengthen the bond between the students and staff. On top of that, we have established a close relationship with our industrial partners such as Innobiologics and Kerry Ingredients. It is our vision to be a leading bioprocess engineering department contributing to world-class education, scientific breakthrough in research and ultimately to the whole development of nation. To realize this vision, we have a list of dedicated and passionate academic and technical staff. We are proud by the fact that 43% percent of our academic staff are Ph.D holders while 39% are M.Sc holders and currently reading for their Ph.D. The remaining 17% are tutors who are going to pursue M.Sc/Ph.D in the very near future.

Our staff have made outstanding achievements during the year 2007, especially in the research and innovation field. Among them are:

A total of RM2.7million of research grants in 2007 from various agencies, namely MOSTI, MOHE, Felda Foundation and other private sources.  
28 papers were published in refereed journals; 20 in International Journals and 8 in National Journals.  
Patent/IP: 1 awarded (PI2007 1577 -Dr. Ida Idayu Muhamad) and 1 pending (Assoc. Prof. Dr. Fadzilah Adibah Abdul Majid).  
89 total citation  
2 Industrial Advisors: Dr. Ling Lay Pi and Ir Azmi Othman  
Visiting Professors: Dato' Dr. Nazlee M Kamal, CEO, Innobiologics Sdn Bhd and Prof Dr. Mohamed Al-Rubeai, University College Dublin, Ireland.

Dr. Ida Idayu Muhamad won a Gold medal for her project entitled "An Active Smart Packaging for Monitoring Safety Using A Bio-Switch Concept" at the Malaysian Technology Exposition (MTE) 2007 which was held at the Putra World Trade Centre (PWTC), Kuala Lumpur on the 29 to 31 March 2007. Assoc. Prof. Dr. Ani Idris and her students, Chan Mieow Kee and Nor Azimah Mohd received The Best Overall Poster cash award of RM2000 at the 2nd Asian BioManufacturing Conference Poster Competition, Sheraton Imperial Hotel, Kuala Lumpur, Malaysia held on the 3 - 4 December 2007. Assoc. Prof. Dr. Fadzilah Adibah Abdul Majid was featured in three slots of Wanita Hari Ini, TV3, talking about "Health Benefits of Pineapples for MPIB".

Assoc. Prof. Dr. Ani Idris won the consolation publication prize for International and National Journal Award at the UTM level.

### Highlights of staff activities in the year 2007:

Receiving delegation from Prince Songkhla University, Thailand regarding UTM-PSU MoU (March)  
Industrial training of 3 PSU students supervised by Assoc. Prof. Dr. Firdausi Razali (March-May)  
Educational trip to Taiwan (visit to universities and Biotechnology Industries) (6-13 May)  
Departmental curriculum evaluation, Prof. Dr. M. Al-Rubeai (13-17 August)  
Bioprocess Engineering Seminar, attended by Biotechnology Industry representatives, students and staff (16 August)

## Competitive Students

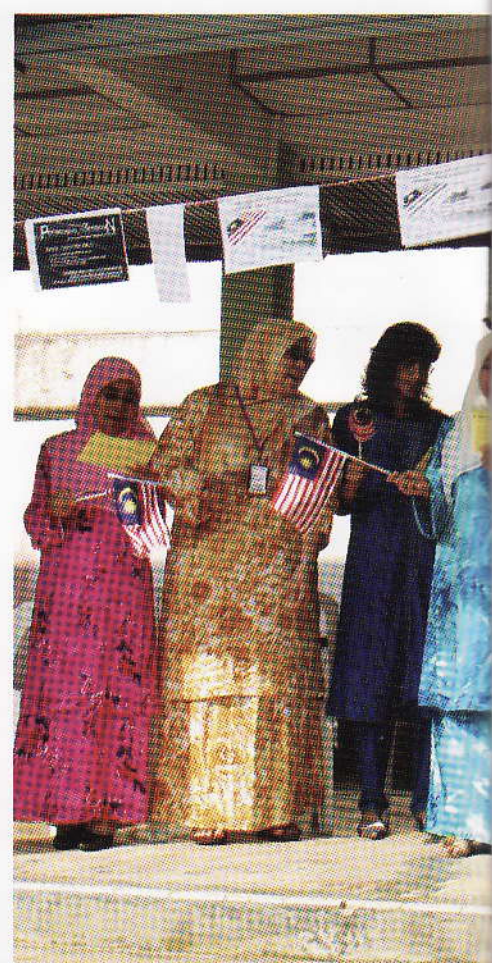
Our students are highly motivated and actively involved in various activities on and off campus. They focus not only on academic excellence, but also on building good personality and good values. As a result, upon graduation our students are very much sought-after by multi national and well established companies. Besides that, many of our undergraduate students opt for continuing studies to graduate level which is reflected in our relatively high number of postgraduate students.

### Highlights of students activities in the year 2007:

Biotechnology and Engineering Exhibition BENEX 07, Dewan Sultan Iskandar, UTM (30-31 March)  
Educational trip to Taiwan (visit to universities and Biotechnology Industries), participated by 24 students (6-13 May)  
Motivational Camp for first year students at Endau Rompin (28-29 July)  
Bioss Rendezvous Nite (7 September)  
Talk on "Bioprocess Industry in Malaysia" speaker: Dato' Dr. Nazlee M. Kamal and participated by fourth year students (September)  
Formation of BIOS (Bioprocess Students Society) (November)



# Staff Welfare and Recreational Committee (JAKRIS)





Staff Welfare and Recreational Committee (JAKRIS) in the Faculty of Chemical and Natural Resources Engineering (FKKKSA) is recognized as a voluntarily committee for caring and managing the staff welfare. JAKRIS is also formed to implement the activities suggested by the faculty and staff. However, JAKRIS also have their own plans and activities to enhance the relationship among staff which can inspire the harmony working environment.

Therefore, various activities have been organized by the committee for the year 2007:

A celebration program for the new appointed committee members

Program "Di Ambang Ramadhan", Ustaz Naim was invited to deliver his meaningful sermon regarding the benefits of Ramadhan.

FKKKSA Hari Raya Gathering which was fully sponsored by the Faculty.

Hari Raya Aidil Fitri Feast.





## *International Staff Testimonials*

### ***Testimonial from Prof. Dr. Mohamed Mahmoud El-Sayed Nasef***

My experience at FKKKSA for the past several months has not only been one of embracing a whole research emphasizing surrounding but also reflecting a new teaching atmosphere towards outcome based education. Therefore, it is really a wonderful experience. The support and cooperation given by fellow colleagues and administration staff at all levels has been felt from the first day making the integration with the system expeditious.

With the current emphasis on upholding teaching and research qualities, I strongly believe that this faculty is going to be the best chemical Engineering institute in the country in the near future. I am looking forward to further contributing to the ongoing efforts to foster teaching and R & D activities.



### ***Testimonial from Dr. Mohammad Ilyas Khan***

I think joining UTM was the best decision and I have no regrets in making this decision. Being a lecturer at UTM is very exciting but very challenging at times. Besides enhancing my teaching and research skills, I have also improved my supervising skills and students managing and motivation skills. I have made number of friends and I have to be honest the regular "Teh tarik" session is fantastic.

### ***Testimonial from Dr. Abdirahman A. Yussuf***

I have joined this faculty (FKKKSA), particularly polymer engineering department as a lecturer in May 2007. During my time here in Universiti Teknologi Malaysia (UTM) I have gained tremendous experience, and learned a lot both socially and academically. One of the most enjoyable aspects about teaching at UTM is my interaction with the students. Their interest makes it easy to encourage lively discussion in the classroom.

I have found teaching at UTM a rewarding and intellectually stimulating experience. I would like to thank all FKKKSA staff for their support, particularly polymer engineering department.





## International Student Testimonials

**K.V.Ashok Raj**  
(Tamil Nadu, INDIA)



Studying abroad has definitely been a great experience and as an international student in UTM, I am having a comfortable stay at the Department of Bioprocess Engineering, FKKKSA and the Kolej. Faculty members of the department are much friendly. My supervisor, who is approachable at any time, gives me freedom to express my thoughts. The support I have received since arriving at UTM has been great. The environment is conducive for research students to attain their goals.

The facilities offered by FKKKSA and UTM such as library, transport, internet and much more are to be highlighted. The campus is always maintained clean and green. As there is a good community of students, it is a great way to make friends with both local and other international students. They are friendly and helpful. Also I feel great to watch people, regardless of their language, religion or nationality, living in harmony. Thus undoubtedly; UTM is friendly and safe.



**Mohammed Abdulsalam Rageh**  
(YEMEN)

I am a student in Gas Engineering Department. I am glad to be a student of this university. Studying here gave me a great opportunity to know new people, culture and new dynamic environment. Finally, I am thankful to Allah first, my precious parents and my valued country for the undying support. My thanks also go to my lecturers for continuous support and encouragement.

**Dirga Adhi Putra**  
(Jakarta, INDONESIA)



Here in FKKKSA, especially in the Polymer Engineering Department, they emphasis on human skills or as they say it CAPTESL. The need to improve one's human skill is based on the feedback received from the industry. The industries complained that most the graduates lack the skill that differentiate them with low skilled labor. Obviously, a new learning method such as Problem Based Learning has been incorporated in our studies and learning process.

Also I would like to add that the lecturer and teaching staff in Polymer Engineering Department are highly experienced in their subjects and can relate to the industry. Furthermore they do not stress too much on lecturer-student protocol, therefore making it easier for me to interact and discuss with them. This have tremendously helped me to excel in my studies and learning experience. In the end, all I can say that hopefully I will become a graduate next year in my final year in UTM. Also, I would like to say proudly as the first Indonesian generation at Polymer Engineering Department, I will be the person who can stimulate and distribute the knowledge and successfully achieve in real life as an engineer under the name of UTM and my nation certainly.





# NATIONAL CHEMICAL ENGINEERING SYMPOSIUM 2007 (NACES'07)

7th - 9th SEPTEMBER 2007

UNIVERSITI TEKNOLOGI MALAYSIA



**"THE CHALLENGES OF  
CHEMICAL ENGINEERS  
IN FACING GLOBAL WARMING"**



organized by:



supported by:



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## Special Report - NACES 2007

National Chemical Engineering Symposium 2007 (NACES 2007) was held from 7th – 9th September 2007 at Universiti Teknologi Malaysia. NACES is an annual event that unites chemical engineering undergraduates from local universities. This symposium was organized by the Chemical Engineering Students' Society (PPKK) and was kindly sponsored by SHELL, Petronas, CCM Chemicals and Titans Chemicals. The program was officiated by Ir. Ahmad Nordeen Salleh, The Deputy Chairman of Institute of Chemical Engineers (IChemE), Malaysia. About 250 chemical engineering undergraduates from UTM, USM, UTP, UPM, UNIMAS, UiTM, UKM, UMP, UMT and Curtin University, Sarawak participated in the programme. "The challenges of Chemical Engineers in Facing Global Warming" was chosen as the theme of the programme. The theme was chosen to provide better awareness among students the global warming crisis that the world is facing, to draw interest and concern of the public over the importance of chemical-based industries to the country development, and to enhance cooperation, networking and good relationship among stakeholders, industries, academics, and governmental organization in developing world class education programme. Several activities were conducted in line with the theme such as keynote address, forums, workshop, paper presentation competition, exhibition and others. The organizing committee would like to extend our gratitude to the dean of FKKKSA and our sponsors, without whom, this event would not have been successful.



# Calendar of Events

**7 Jan 2007:** UTM's Vice Chancellor visit to UNIPEM.

**Jan - Jul 2007:** Distinguished Visiting Professor Programmes- Prof. Emeritus Dr. Matsuura Takeshi from University of Ottawa, Canada. Appointed as an adviser to FKKKSA and UTM regarding learning and research especially in membrane technology.

**9-11 Feb 2007:** UNIPEM staff workshops: Migration from ISO/IEC 17025 to MS ISO/IEC 17025 at Hotel Seri Malaysia, Mersing.

**15 Feb 2007:** Demonstration and visitation from students-Bachelor of Engineering Chemical and Gas to membrane research lab. One of the activities for Bachelor students for learning processes.

**10 March 2007:** National Carbon Nanotechnology Meeting 2007. Monthly meeting to discuss the development of nanocarbon technology.

**12 March 2007:** Programme Meeting on Polymer-Based. Discussion regarding current development from financial aspect and discussion to propose Carbon Fiber Seminar 2007 which was organized by SIRIM in August 2007.

**17 March 2007:** Verification Audit: Migration to MS ISO/IEC 17025: 2005 by Department of Standards Malaysia.

**28 March 2007:** The final presentation for a project entitled 'Incident Investigation on Gas Pipeline Leakages and Breakages for Gas Malaysia Sdn. Bhd' was conducted at Gas Malaysia Sdn. Bhd, Shah Alam, was undertaken by 25 participants including from GASTEG, Gas Malaysia and CFD.

**April 2007:** Laboratory Safety Audit by Safety Panel UTM for Best Laboratory Contest for UTM level. 3rd place.

**18-20 May 2007:** National Workshop on Membrane Technology for Fluid Separation Processes. This programme was organized by MRU to discuss and present the current developments of membrane technology.

**28 May 2007:** National Carbon Nanotechnology Meeting 2007. Monthly meeting to discuss the development of nanocarbon technology.

**21 Jun 2007:** Programme Meeting on Polymer-Based. Discussion regarding current development from financial aspect and discussion to propose Carbon Fiber Seminar 2007 which was organized by SIRIM in August 2007.

**Jun - Sept 2007:** Discussion for cooperation with CITO Petroleum (M) Sdn. Bhd, and signing of agreement to cooperate with the Faculty (UNIPEM) with CITO Petroleum (M) Sdn. Bhd.

**Aug-Oct 2007:** Distinguished Visiting Professor Programme - Prof. Dr. Kang Li from Imperial College, London. Visitation and appointed as adviser to FKKKSA and UTM regarding learning and research especially in membrane technology.

**6 Aug 2007:** Programme Meeting on Polymer-Based. Discussion regarding current development from financial aspect and discussion to propose Carbon Fiber Seminar 2007 which was organized by SIRIM in June 2007.

**25 Aug 2007:** Monthly meeting - MRU members. Meeting regarding the current outcome for research, safety and finance.

**28 August 2007:** GASTEG has received visiting professor, Prof. Badr G Ateya from Kuwait University. His arrival was greeted by Director of GASTEG, Prof. Madya Dr. Rahmat Mohsin and the GASTEG staff. Prof. Badr G Ateya also visited laboratory and had a discussions with GASTEG.

**15 Sept 2007:** National Workshop on Ceramic Membrane Technology. MRU organized this program to discuss and present the current developments of ceramic membrane technology.

**Sep - Oct 2007:** Coordinator for Interlaboratory Proficiency Test Correlation Program 2007 - Diesel Program. Six labs have participated in this year program: Laboratory Services Unit (UNIPEM), ITS Testing Services (M) Sdn. Bhd (Port Klang), Core Laboratories Malaysia Sdn. Bhd. (Shah Alam), Industry Division and Tariff Trade Classification of Malaysian Chemistry Department (Petaling Jaya), Central Laboratory Shell Refining Company (Port Dickson), STRIDE - Malaysian Ministry of Defence (Kajang)

**5 Oct 2007:** Prof. Dr. Hassan Saad (Chief Director of Ministry of Higher Education, Malaysia) visit to UNIPEM.

**8 Dec 2007:** 10th Anniversary (1997-2007) for UNIPEM - 10 years accredited with the ISO/IEC 17025 under Malaysian Accreditation Laboratory Scheme (SAMM) by the Department of Standards Malaysia.



## *The Faculty's Industrial Advisory Board*

**Ir. Ahmad Nordeen Salleh**

*Lloyd's Register Technical Services Sdn Bhd*

**Dr. Nasir Hj. Darman**

*PETRONAS*

**Dr. Lim Min Teong**

*Shell EP International Ltd (Singapore Branch)*

**Ir. Hj. Ahmad Fauzi Hassan**

*Suruhanjaya Tenaga*

**Dr. Kamarudin Ab. Malek**

*Lembaga Getah Malaysia*

**Dr. Ling Lay Pee**

*BCI Chemical Corporation Sdn Bhd*

**Ir. Azmi Othman**

*Integrity Resources Trading*

**Mr. Chan Pak Kuen**

*Linatex Sdn. Bhd.*

**Dato' Ir. Dr. Johari Basri**

*Director General*

*Department of Occupational Safety & Health*

## *2007 Illustrious Alumni*

### **Department of Petroleum Engineering**

Dr Lim Min Teong

BSc.Pet.Eng. 1978

Regional Technical Manager

Shell EP International Ltd.

Dr Ong See Hong

BSc.Pet.Eng. 1978

Petroleum Engineering Manager

(Baker Hughes)

Kasim bin Selamat

BSc.Pet.Eng. 1992

Senior Completion Engineer

Murphy Oil (M) Sdn Bhd

### **Department of Gas Engineering**

Zakhirah Shahrum

BSc.Chem(Gas) Eng. 2003

Field Engineer

Slumberger (Eastern) Ltd.

Chen Chee Kong

BSc.Chem(Gas) Eng. 2006

Junior Petrophysicist

Serawak Shell Berhad

Dominic Chua Wei Hon

BSc.Chem(Gas) Eng. 2003

Operation Shift Supervisor

Petronas Kertih

### **Department of Chemical Engineering**

Dato' Prof. Ir. Dr. Zaini bin Ujang

BSc.Chem Eng. '88

TNC (Research & Inovasion)

Universiti Teknologi Malaysia

Ir. Rozali Ahmad

BSc.Chem Eng. '89

CEO & Founder

RNZ Integrated (M) Sdn Bhd

### **Department of Polymer Engineering**

Dr. Desmond Ng See How

BSc.Chem(Polymer) Eng. 2001

Research Scientist

Electrochemistry Laboratory, Paul Scherrer Institute, Switzerland

PM Dr Luqman Chuah

BSc.Chem(Polymer) Eng. 1994

Dept. of Chem and Env. Engineering,

UPM Serdang, Selangor

### **Department of Bioprocess Engineering**

Norsuradi Man

BSc.Chem(Bioprocess) Eng. 1999

Senior Manager (Plant Operations),

Kualiti Alam Bukit Pelanduk

Ahmad Nazien Anuar BSc.

Chem(Bioprocess) Eng. 2000

Senior Technical Executive, SIRIM



## Faculty Directory

### Chemical Engineering Pilot Plant (CEPP)

*Prof. Ramlan Abd. Aziz (Director)*  
Tel.: 607-5531571 Fax: 607-5569706  
[www.cepp.utm.my](http://www.cepp.utm.my)

### Gas Technology Center (GASTEG)

*Assoc. Prof. Dr. Rahmat Mohsin (Director)*  
Tel.: 607-5535927 Fax: 607-5545667  
[web.utm.my/gasteg/](http://web.utm.my/gasteg/)

### Membrane Research Unit (MRU)

*Prof. Dr. Ahmad Fauzi Ismail (Director)*  
Tel.: 607-07-5535625/35624  
Fax: 607-5581463

### Center of Lipids Engineering and Applied Research (CLEAR)

*Dr. Ramli Mat (Director)*  
Tel.: 607-5535567  
Fax: 607-5581463

### Unit Perkhidmatan Makmal (UNIPEM)

*Muhammad Abdul Manan (Director)*  
Tel: 07-5535461 Fax: 607-5581463  
Email: [unipem2u@fkkksa.utm.my](mailto:unipem2u@fkkksa.utm.my)  
[www.fkkksa.utm.my/unipem/](http://www.fkkksa.utm.my/unipem/)

## Faculty Laboratories

### DEPARTMENT OF PETROLEUM ENGINEERING

*Reservoir Engineering Laboratory  
Drilling Engineering Laboratory  
Geology Laboratory  
Workshop  
Heavy Duty Laboratory  
Fluid Mechanics Laboratory  
Thermodynamics & Material Eng Laboratory*

### DEPARTMENT OF CHEMICAL ENGINEERING

*Fluid Mechanics Laboratory  
Thermodynamic Laboratory  
Pollution Control Laboratory  
Separation Process I Laboratory  
Separation Process II Laboratory  
Process Control Laboratory  
Computer Laboratory  
Computer Aided Design Laboratory  
Computer Laboratory  
Heavy Duty Laboratory  
Computer Laboratory  
Organic Chemistry Laboratory  
Analytical Chemistry Laboratory*

### DEPARTMENT OF BIOPROCESS ENGINEERING

*Downstream Processing Laboratory  
Applied Biology Laboratory  
Genetic Engineering Laboratory  
Tissue Culture Laboratory  
Biotransformation/Fermentation Laboratory*

### DEPARTMENT OF GAS ENGINEERING

*Fluid Mechanics Laboratory  
Pollution Control Laboratory  
Separation Process I Laboratory  
Separation Process II Laboratory  
Process Control Laboratory  
Chemical Reaction Engineering Laboratory  
Combustion & Gas Utilization Laboratory  
Gas Flow System Laboratory  
Heavy Duty Laboratory  
Computer Laboratory  
Thermodynamic & Material Strength Laboratory*

### DEPARTMENT OF POLYMER ENGINEERING

*Basic Engineering Laboratory  
Chemical Engineering Laboratory  
Polymer Processing and Testing Laboratory  
Polymer Engineering Research Laboratory*





ANNUAL REPORT 2007

# FKKSA@UTM

Engineering the Resources

[www.fkkksa.utm.my](http://www.fkkksa.utm.my)

**Faculty of Chemical & Natural  
Resources Engineering**

Universiti Teknologi Malaysia

81310 UTM Skudai, Johor

Tel : 07-55 35 500 / 55 35 501

Fax : 07-55 81 463

E-mail : [dean@fkkksa.utm.my](mailto:dean@fkkksa.utm.my)

[www.fkkksa.utm.my](http://www.fkkksa.utm.my)



FKKSA Annual Report Committee Members

The annual report is published each year by the Faculty of Chemical and Natural Resources Engineering at the Universiti Teknologi Malaysia. It is an essential tool that keeps friends of the Faculty informed about research and academic progress. For permission to reprint any part of this publication, contact the Editor-in-Chief.

*Compliments of the Faculty of Chemical and Natural Resources Engineering,  
Universiti Teknologi Malaysia*